ABSTRACT

THE EFFECT OF AMOUNT OF POLYMERS ON PHYSICAL CHARACTERISTICS AND DISSOLUTION RATE OF ANDROGRAPHOLIDE-CHITOSAN SOLID DISPERSION SYSTEM

(Prepared by Solvent Wetting Method and Dried by Spray-Drying)

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Andrographolide is a diterpene-lactone derived from the herb *Sambiloto* (*Andrographis paniculata*) with a lot of health benefits. Its low solubility in water causes limited absorption and bioavailability. Solid dispersion systems can be used to increase the solubility and dissolution rate of medical substances with low water solubility. The purpose of this study was to determine the effect of amount of polymers on the physical characteristics and the rate of dissolution of the chitosan-andrographolide solid dispersion system prepared by the solvent wetting method and dried by spray drying. Characterization of androgarpholide – chitosan dispersion using SEM showed the shape of spherical and heterogeneous particles. The FTIR spectrum of the andrographolide – chitosan solid dispersion showed the same absorption band pattern with its chemical constituents. The DTA thermogram results showed an increase in the number of chitosan causing a decrease in the endothermic peak and a lower melting point in the solid dispersion system, and the result of X-ray difractogram showed a decrease in the intensity of the diffraction showing the crystallinity of andrographolide. The dissolution test showed that the dissolution rate of andrographolide increased with the amount of chitosan used in the solid dispersion system. The highest disolution rate in solid dispersion system with ratio of 1:5 (F5) is 3,19 times compared to andrographolide.

Keywords: Andrographolide, chitosan, solid dispersion, solvent wetting method, spray drying, dissolution